



FERNO

Users' Manual



POWERFlexx™ Hydraulic Cot

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Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations. It is recommended that training on the proper use of this product be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Relations.

Proprietary Notice

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1 - SAFETY INFORMATION

1.1 Warning

Warning notices indicate a potentially hazardous situation which, if not avoided, could result in injury.

! WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the cot.

Improper use can cause injury. Use the cot only for the purpose described in this manual.

Failure to use the safety hook can cause injury. Install and use the safety hook as described in this manual.

Uncontrolled cot movement can cause injury or cot damage. Support and control cot when using manual mode.

Improper operation can cause injury. Operate the cot only as described in this manual.

An unattended patient can be injured. Stay with the patient at all times.

An unrestrained patient can fall off the cot and be injured. Use restraints to secure the patient on the cot.

Rolling the cot in the loading attitude can increase the chance for the cot to tip. Roll the cot only when the main frame is level.

Helpers can cause injury or be injured. Maintain control of the cot, operate the controls, and direct all helpers.

Helpers can be injured. Show helpers where to grasp the cot to avoid pinch points.

Improper maintenance can cause injury. Maintain the cot only as described in this manual.

Improper adjustment of the manual mode cable can lead to injury. Adjust the tension of the manual mode cable when needed.

The cot can rapidly descend and cause injury if manual mode is activated while you are adjusting the manual-mode cable tension. Place a chock on the lower frame and use caution when adjusting cable tension.

! WARNING

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the cot.

Modifying the cot can cause injury and damage. Use the cot only as designed by Ferno.

Attaching improper items to the cot can cause injury. Use only Ferno-approved items on the cot.

1.2 Important

Important notices emphasize important usage or maintenance information.

Important

Before installing the safety hook, consult the ambulance manufacturer about possible interference with wiring and other elements under the ambulance floor, and about the ambulance warranty.

1.3 Bloodborne Disease Notice

To reduce the risk of exposure to bloodborne diseases such as HIV-1 and hepatitis when using the cot, follow the disinfecting and cleaning instructions in this manual.

1.4 Cot and Fastener Compatibility

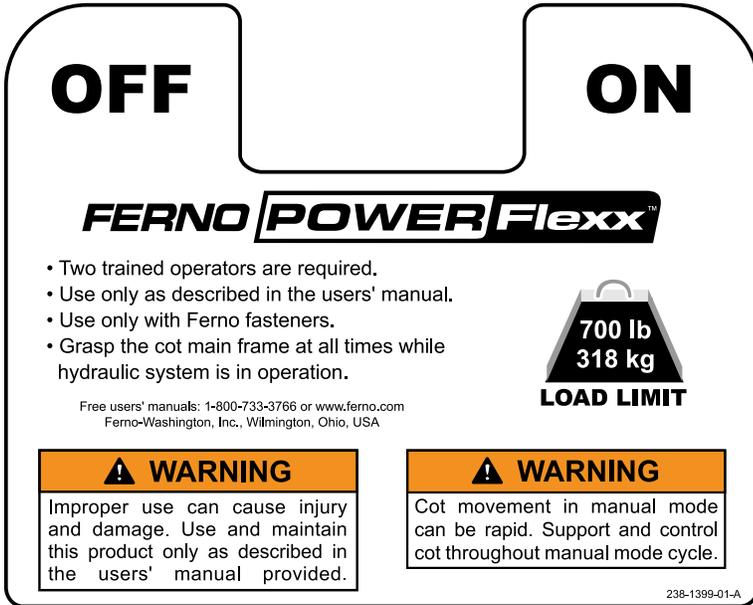
Combining different manufacturer's products into a "mixed-component" cot/cot fastener system can increase the users' risk of injury and damage. Ferno-Washington, Inc. strongly recommends that only Ferno-manufactured cots be used in Ferno-manufactured cot fasteners, and that only Ferno-manufactured cot fasteners be used for securing Ferno-manufactured cots in ambulances.

ANY COMBINATION OF A FERNO COT OR COT FASTENER WITH A NON-FERNO COT OR COT FASTENER IS MISUSE OF THE FERNO PRODUCT. Responsibility for the outcome of known, intentional misuse rests squarely on the misuser.

1.5 Safety and Instruction Labels

Safety and instruction labels place important information from the users' manual on the cot. Read and follow label instructions. Replace worn or damaged labels immediately. See *Parts and Service*, page 38.

LABELS AFFIXED TO THE COT



Label A (1 per cot) - Summary of instructions for safe and proper operation of the cot.

Label B and Label C (6 total per cot) - Indicates that fingers or hands can be injured if placed near areas of the cot where these labels are located.



Label E and Label F (4 total per cot) - Indicates that fingers or hands can be injured if placed near areas of the cot where these labels are located.



Label D (1 per cot) - Indicates the location of the control used to operate the cot manually.



LABELS AFFIXED TO THE POWER PACK



Label A (1) - Indicates where to connect the control-unit cable to the power pack.



Label B (1) - Indicates where to connect the actuator cable to the power pack.



Label C (1) - Indicates where to connect the charging cable to the power pack.



Label D (1) - Indicates Power Pack contents and specifies service personnel.

2 - OPERATOR SKILLS AND TRAINING

2.1 Skills

Operators using the cot need:

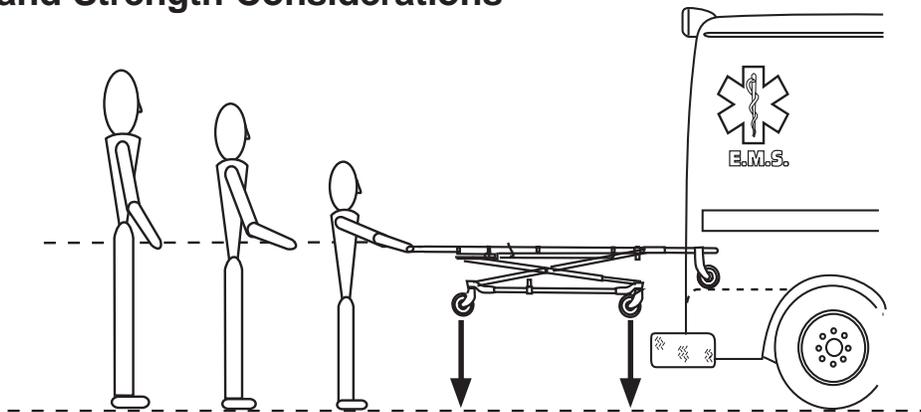
- a working knowledge of emergency patient-handling procedures.
- the ability to assist the patient.
- a complete understanding of the procedures described in this manual.

2.2 Training

Trainees need to:

- follow a training program designed by their training officer.
- read this manual. For additional free users' manuals, contact your Ferno distributor or Ferno Customer Relations (page 41).
- practice with the cot before using it in regular service.
- be tested on their understanding of the cot.
- record their training information. A sample training record sheet is provided on page 42.

2.3 Height and Strength Considerations



When loading the cot, the control (foot-end) operator must lift and hold the weight of the cot, patient, and equipment until the cot legs have folded.

When unloading the cot, the control operator must lift and hold the weight until all four wheels are on the ground.

Supporting this weight requires greater strength from short operators than from tall operators, because short operators must raise their arms higher in relation to their shoulders. Use additional help as needed to lift the load (see *Using Additional Help*, page 28).

The hydraulic power system of this cot eliminates the need for an assistant operator to raise or lower the undercarriage when the cot is in its powered mode. This allows the assistant to stand with the control operator and help lift and hold the weight of the cot.

Once the wheels are on the ground during unloading, stop pressing the RAISE/UNLOAD touch pad.

3 - ABOUT THE COT

3.1 Cot Description

The POWERFlexx™ Hydraulic Cot (referred to as the cot in this manual) is an emergency patient-handling device designed to transport a patient in a ground-based ambulance.

The electronically-controlled, power-lift system helps reduce the risk of back injury to medical service personnel by hydraulically raising and lowering the cot. The lift mode can be changed to manual when desired.

The cot is for professional use by a minimum of two trained operators. It is designed for use with Ferno's Model 175 Series cot fasteners (not included).

The cot is shipped with a battery charger, plus a safety hook, low-profile mounting block, and short turn-knob for use with the fastener. Cot features include:

- Modular hydraulic actuator unit
- Modular power pack with electronic controls
- Manual mode control for non-powered use
- Touch-pad controls for easy raising and lowering
- Infinite height adjustment from 13 to 41 inches
- Loading at any height up to 33 inches
- Anodized tubing for clean hands and clothing
- Choice of colors
- Multipurpose drop frame
- Adjustable foot-end lift bar
- Adjustable pneumatic backrest
- Shock frame
- One-hand, swing-down sidearms
- Four 6-inch, swivel transport wheels, two with wheel locks
- Set of patient restraints
- Foot-end lead handle
- Locking mattress

⚠ WARNING

Improper use can cause injury. Use the cot only for the purpose described in this manual.

3.2 General Specifications

Bed Height Range*	13-41 in/33-104 cm
Maximum Loading Height	33 in (84 cm)
Length	
Maximum	83 in (211 cm)
Minimum	61 in (155 cm)
Patient Surface	79 in (201 cm)
Width	
Overall	24 in (61 cm)
Patient Surface	16 in (41 cm)
Load Limit	700 lb (318 kg)
Control Unit	24VDC
Charging Time	3 hours
**Weight	133 lb (60 kg)

* Bed height is the distance from the ground to the top surface of the seat panel, at the longitudinal center of the cot. Loading height is the distance from the ground to the bottom of the loading wheel.

** Weight includes power pack but does not include mattress or restraints.

General specifications are rounded to the nearest whole number. Metric conversions are calculated before rounding the English measurements. For more information, contact Ferno Customer Relations (page 41) or your Ferno distributor. Ferno reserves the right to change specifications without notice.

AMBULANCE INFORMATION

The ambulance bumper extension must not exceed 14 inches. The patient compartment must have a level floor large enough for the folded cot, and a Ferno® cot fastener installed (not included). See *Cot and Fastener Compatibility*, page 5.

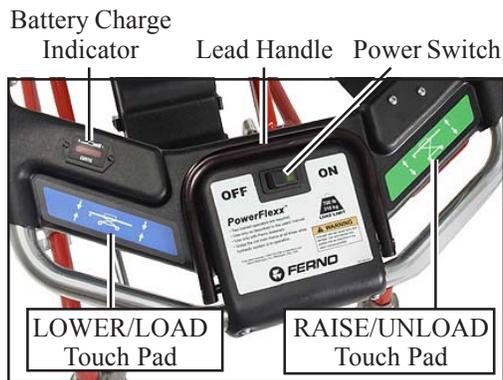
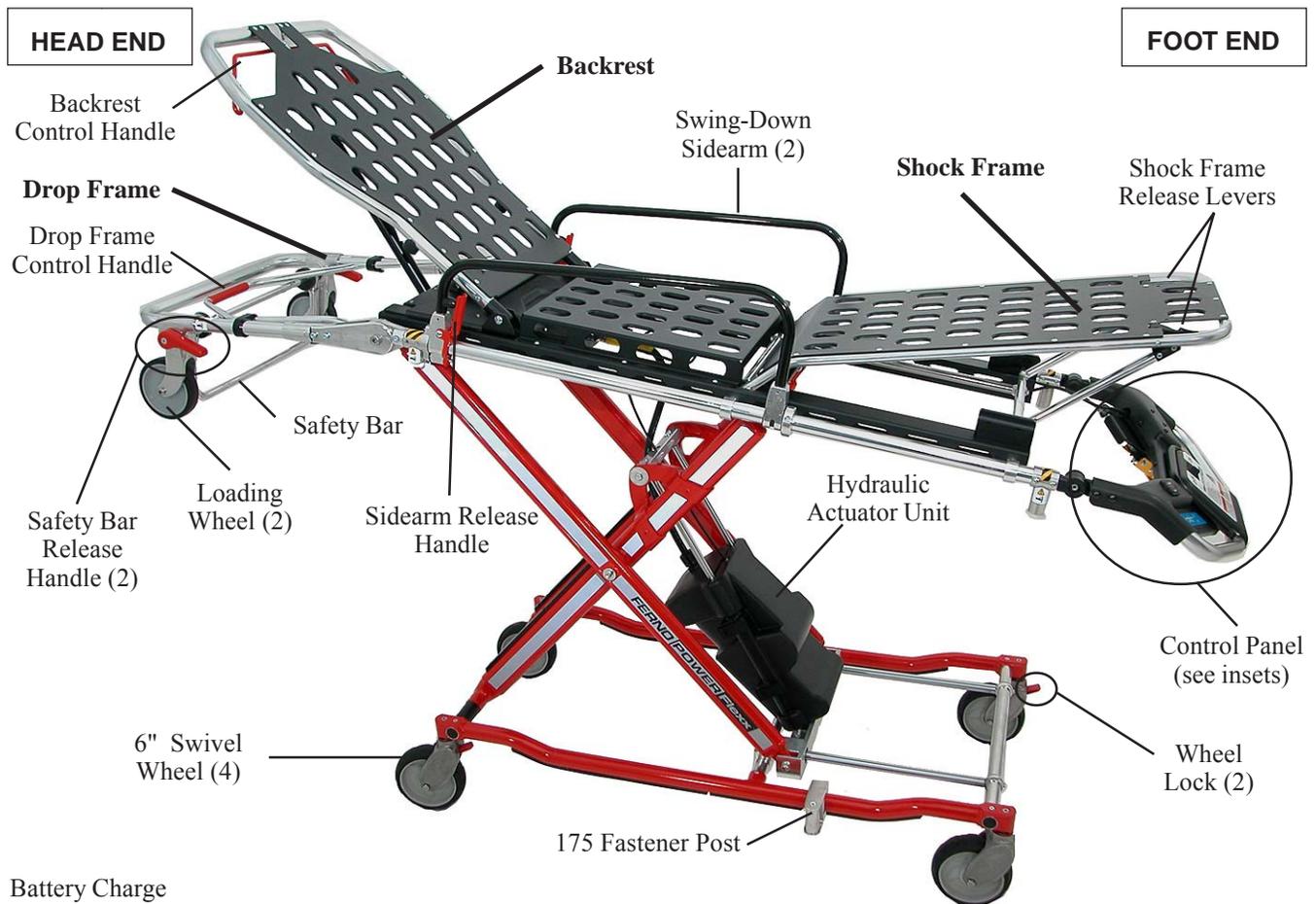
The cot is for use with ambulances that meet the requirements of Federal Ambulance Specification KKK-A-1822. For information about the specification, contact: Federal Supply Services, Specifications Section, Suite 8100, 470 E. L'Enfant Plaza, SW, Washington, DC 20407.



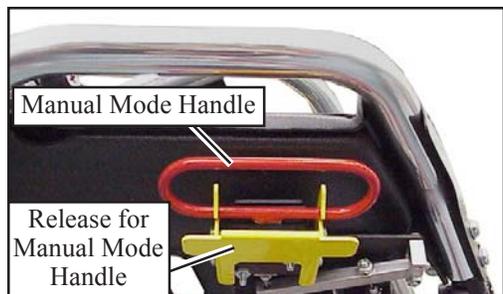
LOAD LIMIT

Inspect the cot if the load limit has been exceeded.
(See *Inspecting the Cot*, page 34).

3.3 Components



Control Panel - Top



Control Panel - Bottom

- ALSO INCLUDED:**
- Safety Hook
 - Low-Profile Mounting Block
 - Short Turn-Knob
 - Users' Manual
 - Set of Restraints
 - Mattress



24 VDC Power Pack Module



Battery Charger

3.4 Cot Height

LOADING HEIGHT RANGE

The cot can be loaded into ambulances with floor heights up to 33 inches (84 cm).

Note: The cot is described as being in the "loading attitude" when the cot is raised to its highest level.

Note: Loading height is measured from the ground to the bottom of the loading wheels.

Maximum Loading Height
33" (84 cm)



ROLLING-HEIGHT RANGE AND PATIENT TRANSFER RANGE

Transfer the patient to the cot, or roll the cot, with the patient surface 12-30 inches (30-76 cm) above the ground. Do not roll the cot at its highest level - rolling the cot in a loading attitude can increase the chance that the cot could become unbalanced and tip.



12-30"
(30-76 cm)

FULLY FOLDED POSITION

Fully fold the cot to place it in an ambulance or to transfer a patient from the ground onto the cot. The cot can also be rolled in the fully folded position if needed.



12" (30 cm)

4 - SETUP AND INSTALLATION

4.1 Attach the Restraints and Mattress

Before placing the cot in service, attach the mattress and restraints (see page 23). Also see the restraint users' manuals provided with the restraints. Keep the restraint instructions with this manual for future reference. For additional, free manuals, contact Ferno Customer Relations (page 41).

4.2 Install the Safety Hook

The safety hook (Figure 1) provided with the cot is a component of Ferno's cot fastening system, and must be installed on the ambulance floor.

The safety hook catches the cot safety bar (Figure 2) to ensure that the cot remains secure inside the ambulance while the operators raise or lower the undercarriage during loading or unloading.

Installing the safety hook requires the skills of a mechanic familiar with ambulance construction.

Before installing the safety hook, consult the ambulance manufacturer about the location of wiring, oxygen or fuel lines, and other elements under the ambulance floor, and about the ambulance warranty.

HARDWARE NEEDED (NOT SUPPLIED)

- 2 1/4 in-20 flat-head machine screws*
- 2 flat washers
- 2 lock washers
- 2 1/4 in-20 nuts

*The machine screws must be long enough to pass through the safety hook, patient compartment floor, both washers, **and** still have at least two full threads extending past the nut.

The hardware should be of at least SAE Grade 5 with UNC-2 thread (or equivalent).

Important

Before installing the safety hook, consult the ambulance manufacturer about possible interference with wiring and other elements under the ambulance floor, and about the ambulance warranty.

! WARNING

Failure to use the safety hook can cause injury. Install and use the safety hook as described in this manual.

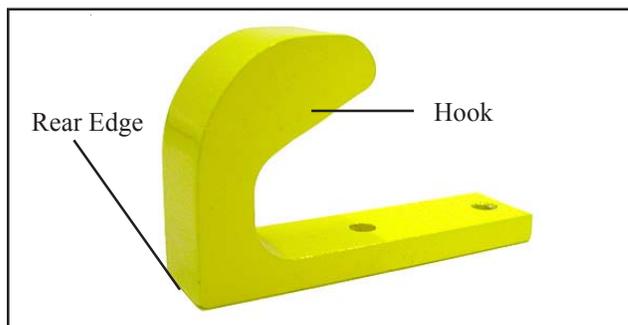


Figure 1 - Safety Hook

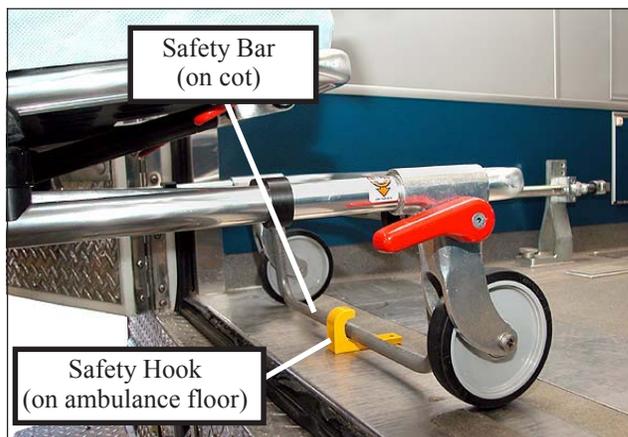


Figure 2 - Engaging the Safety Hook

POSITIONING THE SAFETY HOOK

Position the safety hook as close to the rear of the ambulance as possible, within the limits below:

- ❑ The bumper or extended folding bumper must not exceed 14 inches (36 cm).
- ❑ Position the safety hook with the hook facing the front of the ambulance.
- ❑ Position the safety hook at least 11 inches away from the door frame (Figure 3) so the cot safety bar will engage the safety hook when the cot is loaded or unloaded.
- ❑ Position the safety hook no more than 17-3/4" (45 cm) from the rear edge of the hook to the rear of the ambulance, **including** the bumper and folding bumper step in the extended (open) position.

INSTALLING THE SAFETY HOOK

1. Mark the position of the safety hook on the floor.
2. Drill holes through the floor for the flat-head machine screws.
3. Attach the safety hook to the floor (Figure 4).
4. Test the hook by loading and unloading the cot. Verify that there is no interference with folding or unfolding the legs.

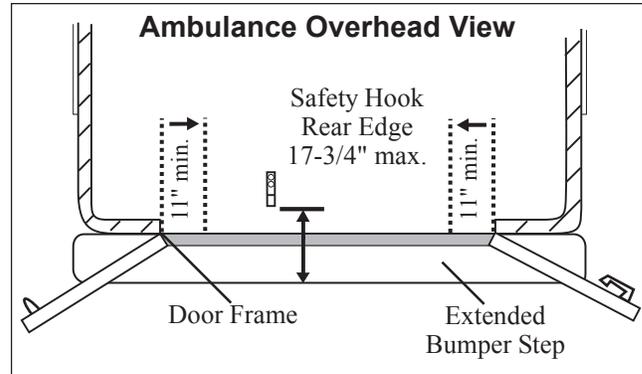


Figure 3 - Safety Hook Placement

Important

If the safety hook is installed too far inside the ambulance, you will not be able to properly fold or unfold the cot undercarriage when it is secured by the hook. Measure and install the safety hook as instructed in this manual.

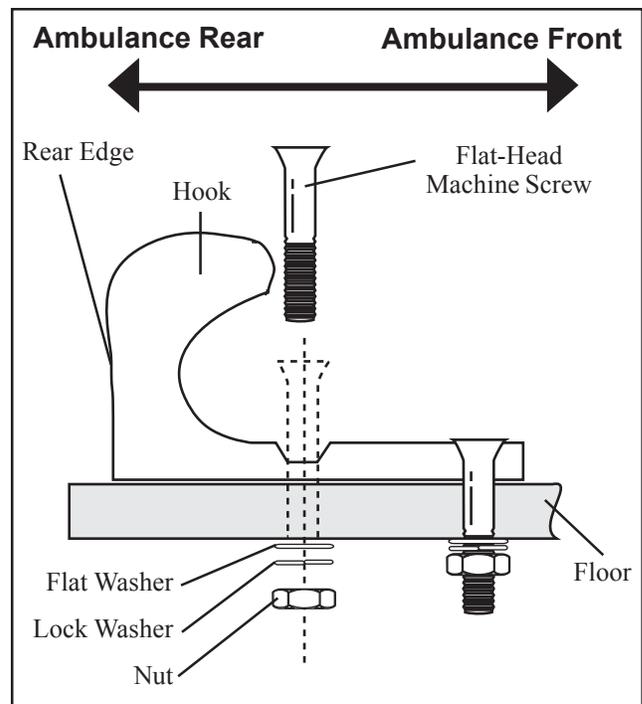


Figure 4 - Installing the Safety Hook

4.3 Update Your Model 175 Fastener

Model 175 fasteners with removable antler mounts and serial numbers lower than L-612245 must be updated to function properly with current Ferno cots. (The serial number is located on the rail portion of the fastener).

The cot is shipped with parts to update one fastener: one low-profile mounting block and one short turn knob. Contact Ferno Customer Relations (page 41) to order parts to update additional fasteners.

Note: Updated fasteners function properly with older Ferno® cots.

Update your fastener if:

- the antler is removable (attaches to the ambulance floor with a large turn-knob) AND
- the antler is currently attached to the ambulance floor by an old-style rectangular mounting block (Figure 5) and knob.

Do not update your fastener if:

- the antler is permanently mounted to the floor by a bolt OR
- your removable antler already uses the new-style low-profile mounting blocks (Figure 5)

TO UPDATE YOUR FASTENER

The parts provided allow you to replace the block and knob at the rear of the antler. To update an existing fastener:

1. Remove the old-style rectangular antler mounting block and knob from the rear of the antler.
2. Position the new-style, low-profile mounting block (provided) with the sloped end facing toward the rear of the ambulance as shown in Figure 6. Secure the antler and new-style mounting block with the new, short turn-knob provided.

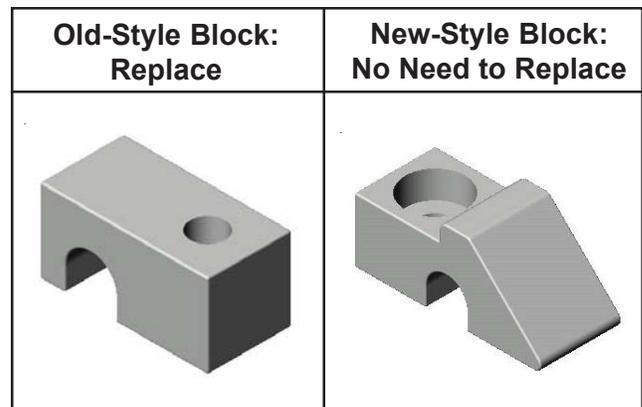


Figure 5 - Old-Style and New-Style Mounting Blocks

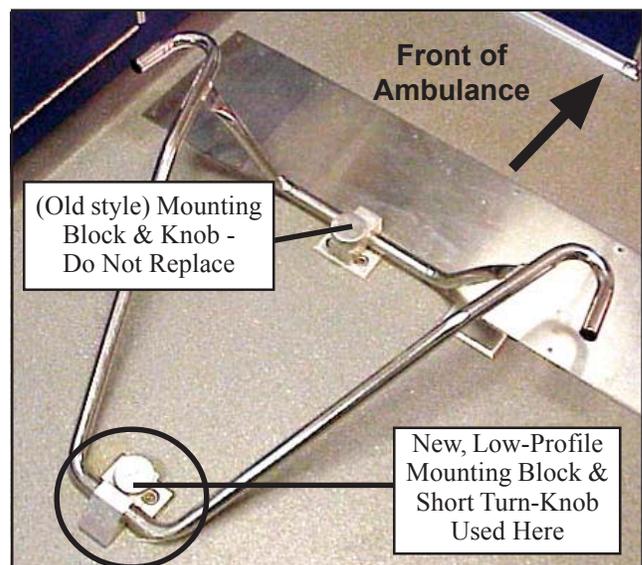


Figure 6 - Updated Antler Shown After Rear Mounting Block & Turn-Knob Replaced

5 - USING THE HYDRAULIC POWER SYSTEM

5.1 General Guidelines

- The power-lift system is electro-hydraulically powered. A pair of rechargeable batteries inside the power pack drive the 24VDC hydraulic system.
- The cot can be powered through an average of 50 cycles before the batteries require recharging. Patient weight and extreme temperatures affect the number of cycles.
- Battery charging time is 3 hours. See *Battery Charger*, page 17 or *Charging the Batteries*, page 36).
- The manual mode control handle allows non-powered, manual operation of the undercarriage. See *Manual Mode*, page 16.
- The automatic safety bleed-down system allows the cot to slowly settle to its lowest position in the event the cot is overloaded (patient plus equipment weight exceeds the Load Limit).

SAFE-PRACTICES NOTE

Both operators must assume their positions at opposite ends of the cot and maintain a firm grasp on the main frame during hydraulic operation (Figure 7). The hydraulic system is not a substitute for operator attentiveness and safe lifting practices.

5.2 Main Power Switch

The main power switch is located at the center of the foot-end control panel (Figure 8). Turn the switch OFF to prevent accidental activation of the hydraulic system. Turn the switch ON to use the cot in its powered mode.

A green lamp in the switch is lit when the rocker switch is set to ON.



Figure 7 - Operators Maintain Grasp on Cot During Hydraulic Operation

Important

The hydraulic system is not a substitute for standard safe lifting practices. Both operators must grasp the cot main frame and be prepared to support the load while the cot is being used in its powered mode.



Figure 8 - Main Power Switch

5.3 Touch Pad Controls

Large touch-pads on the control panel (Figure 9) operate the hydraulic power system. Grasp the main frame and position your hands so you can access the touch pads with your thumbs.

Press the **blue** touch pad on the operator's left to lower the cot, fold the cot, or load the cot into an ambulance.

Press the **green** touch pad on the operator's right to raise the cot or extend the legs when unloading the cot from an ambulance.

Use the following memory aid to remember the touch pad functions:

LEFT = LOWER or LOAD
RIGHT = RAISE or UNLOAD

Note: Press any part of the colored area of the touch pad to operate the cot (Figure 10).

The control panel and foot-end lift bar can be adjusted to position the switches at a comfortable height for the operator. See *Adjustable Foot-End Lift Bar*, page 21.



Figure 9 - Touch Pad Controls



Figure 10 - Press Anywhere in the Colored Area to Operate the Touch Pad

5.4 Battery Charge Indicator

The red light on the battery charge indicator (Figure 11) indicates the approximate amount of battery power remaining. Be aware that:

- when the red light is at the right of the display, the battery is fully charged. When the red light is at the left, the battery power is very low.
- the rate of speed for raising and lowering the cot is faster when the batteries are fully charged.
- the batteries do not have a “memory” and do not need to be discharged before recharging. Recharge the batteries as often as possible.

To recharge the batteries, see *Battery Charger*, page 17, or *Charging the Batteries*, page 36.

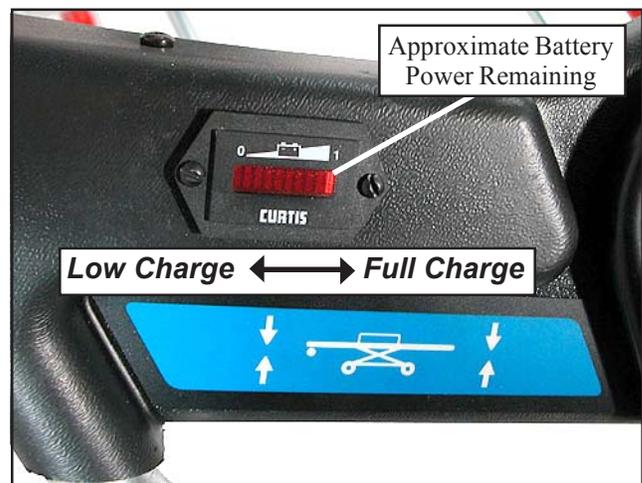


Figure 11 - Battery Charge Indicator

5.5 Manual Mode

The manual mode handle is under the right side of the control panel, below the RAISE/UNLOAD touch pad (Figure 12). In manual mode, the undercarriage is unlocked, allowing the bed to be raised or lowered without hydraulic assistance.

You may wish to use the manual mode when the battery charge is low and you need to conserve power.

Exercise extreme caution. Operators must support the load **before** using the manual mode handle, especially when a patient is on the cot.

⚠ WARNING

Uncontrolled cot movement can cause injury or cot damage. Support and control cot when using manual mode.

TO ACTIVATE THE MANUAL MODE AND UNLOCK THE UNDERCARRIAGE:

1. Support the weight of the cot.
2. Lift the **yellow** retaining lever to access the manual mode handle (Figure 13). **Verify that operators (and any helpers) are holding the weight of the cot before proceeding.**
3. Pull the **red** manual mode handle (Figure 13) and raise or lower the cot. The amount of pressure you use to pull the handle controls how quickly the cot can be raised or lowered. When folding the cot, you will need to release the handle slightly as the cot nears the folded position (see **Important** note).

TO LOCK THE UNDERCARRIAGE AND RETURN TO THE POWERED MODE:

Release the manual mode handle.

Important

In manual mode, the rate of descent will accelerate as the cot nears the folded position. Relax your grasp on the handle as you near the folded position. Always maintain a firm grasp on the cot and support the weight when using manual mode.

Important

After using manual mode, the pistons may allow the cot to settle. Support the weight for 2 seconds, or briefly touch the UP button, to eliminate settling.



Figure 12 - Manual Mode Handle

Safely Using Manual Mode

The pressure you use to squeeze the manual-mode handle determines the speed at which you can manually raise and lower the undercarriage.

Manipulating the handle appropriately for the task at hand will help you operate the cot more efficiently and safely in manual mode.

- **Cot movement in manual mode can be rapid. Support and control the cot throughout the manual mode cycle.**
- When folding the cot, relax your grasp on the handle as the cot nears the folded position.
- Use light pressure and pull the handle only a short distance to guide the cot through a slow descent.
- For rapid movement, pull the handle fully. Operators (and helpers) must be ready and holding the weight of the patient and cot **before** you pull the handle.
- **After using manual mode, the pistons may allow the cot to settle. Support the weight for 2 seconds, or briefly touch the UP button, to eliminate settling.**

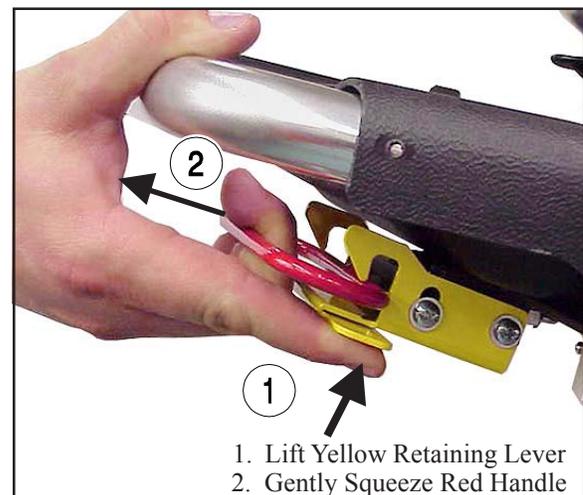


Figure 13 - Using the Manual Mode Handle

5.6 Battery Charger

The battery charger (Figure 14) uses standard AC power (115 VAC/60 hz/1 phase) to charge the batteries in the cot's power pack module. The power cord connects to a standard wall outlet. The charging cord attaches to the power pack.

To charge the batteries, see *Charging the Batteries*, page 36. Charge the batteries for 3 hours minimum for a full charge.

The cot can be powered through an average of 50 cycles before the batteries require recharging. Patient weight and extreme temperatures affect the number of cycles.

If the batteries are providing significantly fewer cycles than normal, replace the batteries or power pack. See *Accessories and Related Products*, page 40.



Figure 14 - Battery Charger

5.7 Power Pack Module

If you have purchased multiple power packs, you may wish to swap out a discharged power pack for one that is charged, in order to eliminate the downtime of waiting for batteries to recharge.

The following procedure describes how to remove and replace the power pack module.

1. Unscrew and remove the “Control Unit Connector” and the “Actuator Unit Connector” cables from the power pack (Figure 15).
2. Raise the backrest about halfway.
3. Lift and slide the power pack away from the cot (Figure 16). Raise or lower the backrest a little as needed to work the power pack out of its position.

4. Install the new power pack by sliding it into place and reattaching the two connecting cables.

Note: Route the power cable **over** the X-frame crosstube, and **under** the lift axle (Figure 15).

5. Test the cot by raising and lowering it to verify the power pack is providing power to the unit. Check the battery charge indicator and charge the batteries if needed.

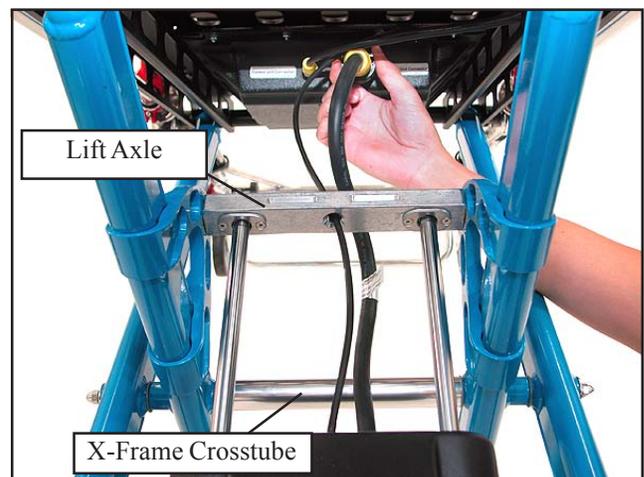


Figure 15 - Cable Connections
(Viewed from Foot End of Cot)



Figure 16 - Removing Power Pack Module

6 - COT FEATURES

6.1 Drop Frame

The drop frame has multiple uses:

- It can be used as a lifting point for operators and helpers standing at the head-end of the cot.
- It can be lowered to shorten the length of the cot for maneuvering where space is limited.
- The safety bar attached to the drop frame secures the cot inside the ambulance during the loading and unloading process.

The drop frame adjusts to three positions (Figure 17):

- **Extended (locked):** Keep the frame in this position to load/unload the cot or when a tall head-end operator lifts the cot.
- **Middle (locked):** This position provides better lifting leverage for a short head-end operator.
- **Folded (unlocked):** Place the drop frame in this position and raise the backrest to shorten the cot when space is limited (such as in an elevator, narrow hallway, etc.).

To raise or lower the drop frame, squeeze the release bar (Figure 18) and raise or lower the drop frame to the new position, then let go of the release bar.

Note: *You do not need to squeeze the release bar when lifting the drop frame from the folded to the middle position.*



Figure 17 - Drop Frame Positions

Important

Extend the drop frame before folding the cot.

Folding the cot with the drop frame in a lowered position can damage the drop frame if it strikes the cot undercarriage, floor, or ground.



Figure 18 - Adjusting the Drop Frame

6.2 Safety Bar Release Handles

The (red) release handles for the safety bar are located above the loading wheels, near the cot main frame (Figure 19).

As the cot is unloaded from the ambulance, the safety bar catches the safety hook installed on the ambulance floor. At the appropriate time, press down one of the release handles to lift the safety bar up and off the safety hook.

For complete unloading instructions, see *Unloading the Cot*, page 31.

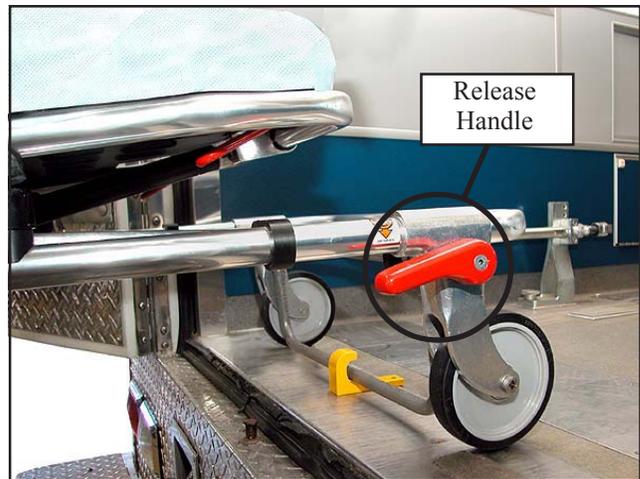


Figure 19 - Safety Bar Release Handle

6.3 Backrest

The backrest can be elevated to any angle between 0° and 61°. To adjust the backrest:

1. Unfasten or loosen the torso restraint.
2. While supporting the weight of the backrest and patient, press the red control handle toward the backrest and raise or lower the backrest (Figure 20).
3. Release the control handle to lock the backrest.
4. Fasten and adjust the torso restraint.

Note: *The backrest gas spring is under pressure to ease raising and lowering. Control the upward movement of the backrest so it does not move too quickly.*



Figure 20 - Using the Backrest

6.4 Sidearms

Sidearms provide patient security and comfort. Keep the sidearms raised except during patient transfer.

The sidearms have an intermediate stop. When used with Ferno's optional sidearm cover, this provides a flat surface to support small items weighing less than 10 lb (4.5 kg), or the patient's arm.

To lower a sidearm, squeeze the handle (Figure 21) and swing the sidearm downward.

- To use the intermediate stop, release the handle before reaching the midpoint.
- To completely lower the sidearm, do not release the handle until passing the midpoint.

To raise a sidearm, you do not need to use the handle.

- To stop at the intermediate position, raise the sidearm a little past the midpoint, then lower it to the intermediate stop.
- To raise the sidearm upright, swing it upward until it locks.

6.5 Shock Frame

The shock frame elevates the patient's legs 16°. Stand at the foot end of the cot to operate the shock frame. Use an underhand grip (palms up) to support the shock frame when raising or lowering it.

RAISING THE SHOCK FRAME

1. Unfasten or loosen the leg restraint.
2. Using both hands, lift the shock frame until it locks in the raised position.
3. Fasten and adjust the leg restraint.

LOWERING THE SHOCK FRAME

1. Unfasten or loosen the leg restraint.
2. Support the weight of the shock frame and lift it slightly.
3. With your thumbs, press the shock frame control levers (Figure 22) to disengage the support bars, then lower the shock frame.
4. Fasten and adjust the leg restraint.

Important

Lifting the cot by the sidearms can damage the sidearms. Lift the cot only by grasping the main frame as instructed in this manual.

Important

The sidearms are designed to support only light items at the intermediate stop. Do not place objects weighing more than 10 pounds (4.5 kg) on the sidearms.



Figure 21 - Using the Sidearm



Figure 22 - Lowering the Shock Frame

6.6 Adjustable Foot-End Lift Bar

The foot-end lift bar (and control panel) can be adjusted up or down to suit the operator's height (Figure 23).

The multi-position hinge locks at increments of approximately 10°. These positions allow operators of different heights to use good lifting mechanics to grasp the frame and use the touch pad controls.

To adjust the foot-end lift bar, press the two hinge buttons at the same time to unlock the hinges (Figure 24), then rotate the lift bar to a new locking position. Verify that the lift bar is locked before lifting the cot.



Figure 23 - Foot-End Lift Bar Positions



Figure 24 - Adjusting the Foot-End Hinges

6.7 Lead Handle

Use the lead handle to pull the cot when it is in the rolling-height range (See *Cot Height*, page 10).

To use the lead handle, lift it from its storage position and pull the cot (Figure 25). Press the lead handle into the formed plastic panel to store it.



Figure 25 - Using the Lead Handle

6.8 Wheel Locks

Two transport wheels, one at each end of the cot, are fitted with wheel locks. Use the wheel locks to help keep the cot stationary during patient transfer and certain medical procedures.

The wheel locks are **not** designed for use as brakes. Remain with the cot and keep control of it at all times. Do not leave the cot or a patient unattended.

To engage a wheel lock, press the lock lever down with your toe (Figure 26).

To disengage a wheel lock, lift the lock lever up with your toe.



Figure 26 - Wheel Lock

6.9 Patient Restraints

A set of three patient restraints is supplied (Figure 27):

- a torso restraint used at the patient's chest/waist;
- a two-piece, seven-foot (2.1 m) restraint used at the patient's hips/thighs;
- a two-piece, five-foot (1.5 m) restraint for use at the patient's legs/ankles.

Use all three restraints to secure the patient on the cot. Adjust restraints to safely secure the patient without causing discomfort or impairing circulation. Keep the restraints fastened when not in use to prevent them from interfering with cot operation.

The guide strap supplied with the torso restraint (Figure 27) is designed to help keep the restraints from sliding off the patient's shoulders. Thread the guide strap onto each shoulder strap and position the guide strap near the backrest frame.

To attach, use, and maintain restraints, see the restraint users' manuals (supplied). Additional free manuals are available from Ferno Customer Relations (page 41).

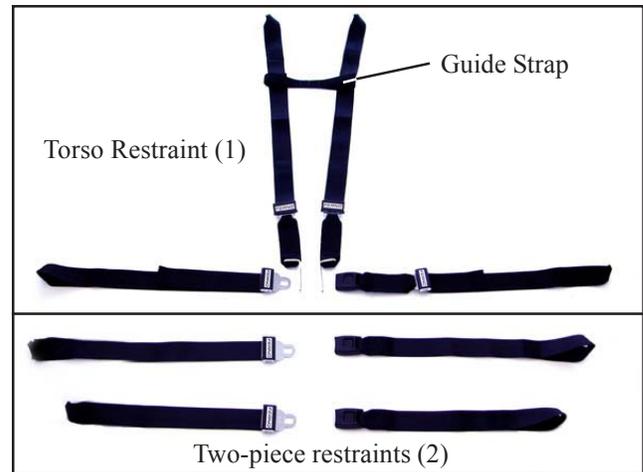


Figure 27 - Restraints

6.10 Locking Mattress

The five hooks on the bottom of the mattress are used to anchor the mattress to the cot and limit its movement. Secure the mattress on the cot using all five hooks.

1. Place the mattress on the cot.
2. Raise the shock frame and/or backrest as needed to feed the hooks through the holes in the bed panels (Figure 28).

To remove the mattress, slide one hand under the mattress and apply upward pressure while removing each hook from the bed surface with your other hand.

Note: Two mattress styles have been produced; the only difference is the location of the upper hooks.

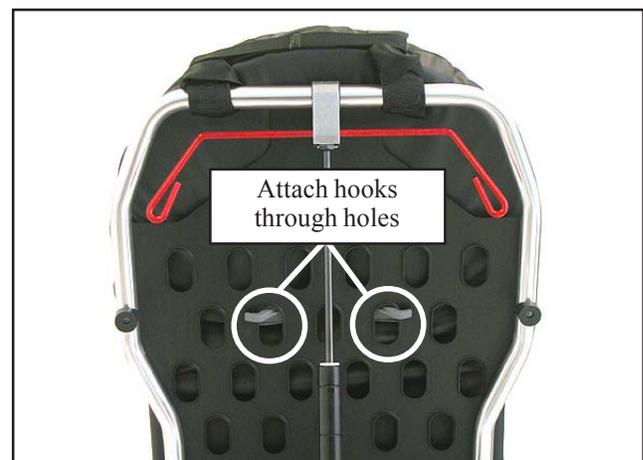


Figure 28 - Attaching the Mattress

7 - USING THE COT

7.1 Before Placing the Cot in Service

- ❑ Personnel who will work with the cot must be trained (See *Operator Skills and Training*, page 7).
- ❑ Set up the cot. Attach the mattress and restraints. Charge the batteries. Install the safety hook and, if necessary, update your fastener. See *Setup and Installation*, pages 11-13.
- ❑ Confirm that the cot operates properly. See *Inspecting the Cot*, page 34.

7.2 General Guidelines for Use

- A minimum of two trained operators is required.
- Operators work together at all times. Communicate with one another and operate the cot using coordinated movements.
- While raising and lowering the cot hydraulically, both operators assume their positions at opposite ends of the cot and maintain a firm grasp on the main frame. The hydraulic system is not a substitute for attentiveness and safe practices.
- When folding the cot in manual mode, the rate of descent will accelerate as the cot nears the folded position. Relax your grasp on the control handle as you near the folded position.
- After using manual mode, the pistons may allow the cot to settle. Support the weight for 2 seconds, or briefly touch the UP button, to eliminate settling.
- Operators may need help when working with heavy loads (patient and equipment). See *Using Additional Help*, page 28.
- Follow standard emergency patient-handling procedures when operating the cot.
- Stay with the patient at all times.
- Always use patient restraints.
- Read the cot fastener users' manual for instructions on using the cot fastener. Also see *Cot and Fastener Compatibility*, page 5.
- Roll the cot only when the patient surface is level. Rolling it when the patient surface is in loading attitude (tilted) can increase the chance that the cot could become unbalanced and tip.

WARNING

Improper operation can cause injury. Operate the cot only as described in this manual.

WARNING

An unattended patient can be injured. Stay with the patient at all times.

WARNING

An unrestrained patient can fall off the cot and be injured. Use restraints to secure the patient on the cot.

WARNING

Rolling the cot when it is in loading attitude can cause it to tip. Roll the cot only when the main frame is level.

Important

In manual mode, the rate of descent will accelerate as the cot nears the folded position. Relax your grasp on the handle as you near the folded position. Always maintain a firm grasp on the cot and support the weight when using manual mode.

Important

After using manual mode, the pistons may allow the cot to settle. Support the weight for 2 seconds, or briefly touch the UP button, to eliminate settling.

7.3 Changing Cot Height

Changing the cot height requires a minimum of two trained operators **working together**. Maintain a firm grasp on the main frame at all times and be prepared to control or help raise or lower the cot if needed.

Adjust the drop frame and foot-end lift frame to suit your height. However, do not completely fold the cot with the drop frame in the middle lifting position.

Instead, lower the cot until the frame is at a comfortable height for the short operator, then stop and extend the drop frame before proceeding with folding the cot. See *Recovering from Improperly Folding the Cot*, page 26.

POWERED RAISING AND LOWERING

1. *Both Operators:* Stand at opposite ends of the cot and use an underhand grip to grasp the main frame (Figure 29). Shorter operators can lower the drop frame and foot-end lift frame for better leverage (Figure 30).
2. *Both Operators:* As the control operator raises or lowers the cot, both operators move with the cot and maintain their grasp on the main frame.
3. *Control Operator:* Release the touch pad when the cot is at the desired height.

Note: *If the weight on the cot exceeds the load limit, the safety bleed-valve will allow the cot to slowly settle to its folded position.*

NON-POWERED RAISING AND LOWERING

1. *Both Operators:* Stand at opposite ends of the cot and use an underhand grip to grasp the cot frame (Figure 29). Shorter operators can lower the drop frame and foot-end lift frame for better leverage when the cot is not folded (Figure 30).
2. *Both Operators:* Lift the cot slightly to take make sure you are supporting the weight.
3. *Control Operator:* Squeeze the manual mode control handle only long enough to make the position change.
4. *Both Operators:* Raise or lower the cot.
5. *Control Operator:* Release the manual mode handle to lock the cot at the desired height.



Figure 29 - Changing Cot Height

Important

Operators should maintain a firm grasp on the main frame at all times and be prepared to control or help raise or lower the cot if needed.

! WARNING

Uncontrolled cot movement can cause injury or cot damage. Support and control cot when using manual mode.



Figure 30 - Short Operators Using Lower Lifting Positions

RECOVERING FROM IMPROPERLY FOLDING THE COT

If you begin to lower the cot with the drop frame unlocked (folded), the drop frame will jam against the lower frame. Raise the cot and extend the drop frame, then lower the cot.

If you attempt to fold the cot with the drop frame locked in the middle lift position, the drop frame mechanism will bind and cause the cot to not set level. If the drop frame is binding against the ground in the middle locked position, **do not** release the drop frame hinges; you could jar the patient and/or damage the mechanism.

To recover, raise the cot to a higher level, extend the drop frame, and then fold the cot.

Important

Do not fold the cot with the drop frame in the lowered lift position. Stop in a comfortable position for the short operator, extend the frame, then continue to fold the cot.

7.4 Transferring the Patient

To transfer the patient onto the cot:

1. Unfasten the restraints and position the restraint straps so they will not interfere with transferring the patient onto the cot.
2. Place the cot beside the patient. Raise or lower the cot to the patient's level.
3. Completely lower the sidearms and engage the wheel locks.
4. Transfer the patient onto the cot using approved EMS procedures and following your local protocols.
5. Raise the sidearms. Adjust the backrest and shock frame as needed.
6. Fasten and adjust the restraints across the patient's legs, hips, and chest/shoulders (Figure 31), and release the wheel locks.
7. Before moving the cot or changing its position, make sure sheets and other articles will not interfere with cot operation.
8. Lift only the weight you can safely handle. Use help as needed (See *Using Additional Help*, page 28).

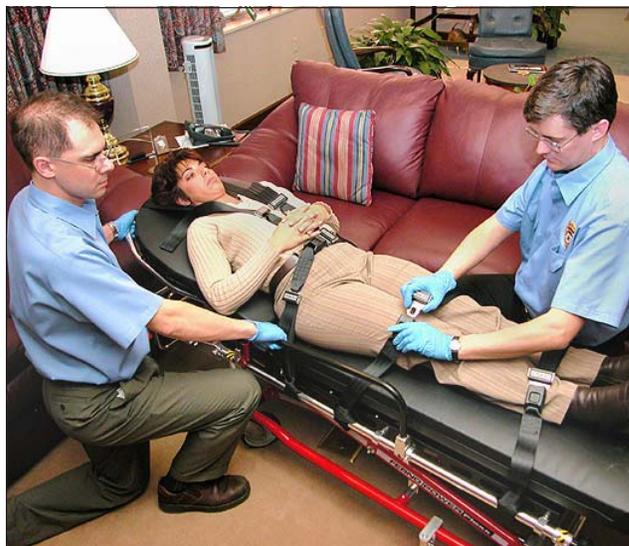


Figure 31 - Securing the Patient

7.5 Rolling the Cot

GENERAL GUIDELINES

- Rolling the cot with a patient on it requires a minimum of two trained operators **working together**.
- Rolling the cot in a loading attitude can increase the chance for the cot to tip. Do not roll the cot at its full height - roll the cot only when the main frame is level. See *Cot Height*, page 10.
- Roll the cot on smooth, unobstructed surfaces whenever possible.
- To cross a low obstacle, lift the cot slightly to take the weight off the wheels so the wheels roll smoothly over the obstacle.
- Avoid high obstacles (such as curbs) whenever possible. Carry the cot over a high obstacle when the obstacle cannot be avoided.
- Use help as needed to safely control the weight of the patient and cot (see *Using Additional Help*, page 28).

ROLLING THE COT

- Securely fasten the restraints around the patient.
- Both Operators*: Place the cot at a rolling height. See *Cot Height*, page 10.
- Control Operator*: Stand at the side of the cot and grasp the main frame (Figure 32) or stand at the foot end of the cot and grasp the lead handle (Figure 33). Pull the cot forward.
- Assisting Operator*: Stand at the head end (Figure 32) or side of the cot (Figure 33) and grasp the main frame. Assist rolling and steering the cot.

Important

If the load (patient and equipment) exceeds the Load Limit, the automatic safety bleed-down system will allow the cot to settle to its lowest position. If this occurs, roll the cot in its folded position.

Important

Roll the cot downhill foot-end first. If it is not medically appropriate to do this, roll the cot head-end first, but do the following:

To maintain cot balance while rolling it downhill head-end first, the assisting operator must exert upward force on the main frame.

! WARNING

Rolling the cot when it is in loading attitude can cause it to tip. Roll the cot only when the main frame is level.



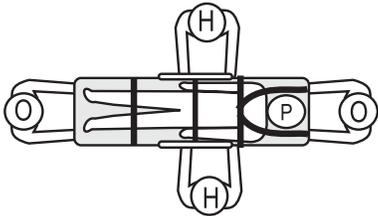
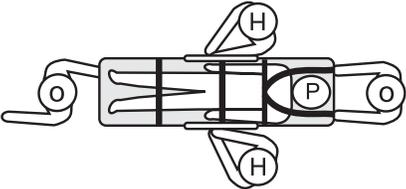
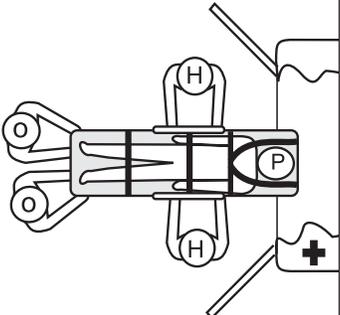
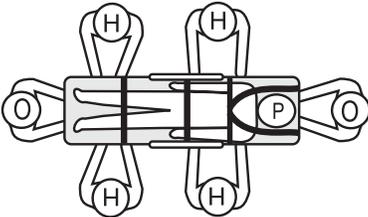
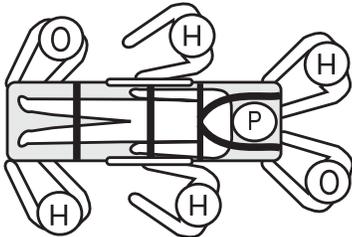
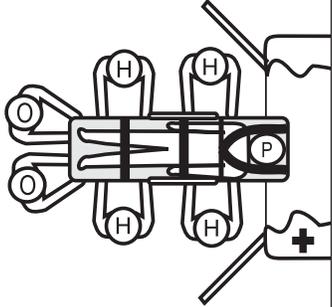
Figure 32 - Rolling the Cot



Figure 33 - Rolling the Cot

7.6 Using Additional Help

Operating the cot requires a minimum of two trained operators. They may need additional help when working with heavy loads (patient plus equipment) or when operating the cot manually. Operators should maintain control of the cot, operate the controls, and direct all helpers. Ferno recommends that helpers work in pairs to help maintain cot balance. The chart below shows suggested placement for operators and helpers.

Helpers	Changing Positions	Rolling	Loading/Unloading
Two Operators + Two Helpers			
Two Operators + Four Helpers			

Key: O = Operator H = Helper P = Patient

⚠ WARNING

Helpers can cause injury or be injured. Maintain control of the cot, operate the controls, and direct all helpers.

⚠ WARNING

Helpers can be injured. Show helpers where to grasp the cot to avoid pinch points.



COT LOAD LIMIT

Inspect the cot if the load limit has been exceeded (See *Inspecting the Cot*, page 34).

8 - LOADING AND UNLOADING THE COT

8.1 Fastener Compatibility

The cot is compatible with all removable and permanently-mounted versions of the Ferno® Model 175 antler and rail fasteners (Figure 34). Configure the fastener for use with the 35-P PROFlexx® Series transporters (See the Model 175 installation manual for details).

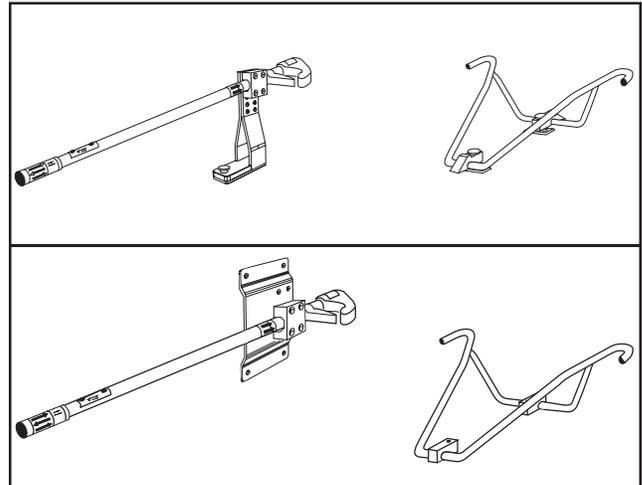


Figure 34 - Examples of Model 175 (Antler and Rail) Fasteners

8.2 Guidelines and Preparation

GENERAL GUIDELINES FOR USE

Using the cot with a Model 175 fastener requires the installation of the safety hook. Also, cot fasteners with removable antlers may need to be updated. The safety hook and parts to update a fastener are supplied with the cot (See *Setup and Installation*, pages 11-13).

Using the cot with a patient requires a minimum of two trained operators **working together**. Use additional help as needed when working with heavy patients (See *Using Additional Help*, page 28).

Important

Loose items and debris on the patient compartment floor can interfere with safety bar and safety hook operation. Keep the patient compartment floor clear.

8.3 Loading the Cot

Loading a cot with a patient on it requires a minimum of two trained operators **working together**. Both operators may stand together at the foot-end corners of the cot while loading it.

1. Raise the ambulance folding bumper, if present.
2. Raise the cot to its loading attitude (high angled position). See *Cot Height*, page 10.
3. Raise the drop frame to the extended position.
4. Roll the cot into the ambulance until both loading wheels are on the patient compartment floor and the safety bar passes the safety hook (Figure 35).
5. *Both Operators*: Lift and hold the foot end of the cot level with the ambulance floor (Figure 36).
6. *Control Operator*: Press and hold the blue LOWER/LOAD touch pad to fold the cot.
7. *Both Operators*: Push the cot completely into the ambulance (Figure 37) and secure the cot in the cot fastener.

Important

If the ambulance is parked on an uneven surface, the operators (and any helpers) may need to lift the cot higher than normal to allow the legs to extend fully.



Figure 35 - Cot Safety Bar on Safety Hook



Figure 36 - Raising and Folding the Cot



Figure 37 - Loading the Cot

8.4 Unloading the Cot

Unloading a cot with a patient on it requires a minimum of two trained operators **working together**. Both operators may stand at the foot-end corners of the cot while unloading it.

1. Raise the ambulance folding bumper, if present.
2. Release the cot from the cot fastener.
3. *Both Operators*: Pull the cot out of the ambulance until the safety hook on the ambulance floor catches the safety bar on the cot. Keep the cot raised and level with the ambulance floor (Figure 38). Use additional help as needed.
4. *Control Operator*: Press the green RAISE/UNLOAD touch pad to extend the legs. Release the touch pad when the wheels touch the ground and the cot is high enough to be released from the safety hook.
5. *Assisting Operator*: Move to the head end of the cot and lift the fastener release handle to release the safety bar from the safety hook (Figure 39).
6. *Both Operators*: Roll the cot completely out of the ambulance. As the cot is rolled away from the safety hook, the Assisting Operator lets go of the fastener release handle.
7. *Both Operators*: Lower the cot to a rolling height (See *Cot Height*, page 10).



Figure 38 - Unloading the Cot



Figure 39 - Disengaging the Safety Bar

8.5 One Operator Loading/Unloading an Empty Cot

If local protocols permit, an empty cot may be loaded and unloaded from the ambulance by one trained operator (Figure 40). Follow the instructions in *Loading the Cot* or *Unloading the Cot*.

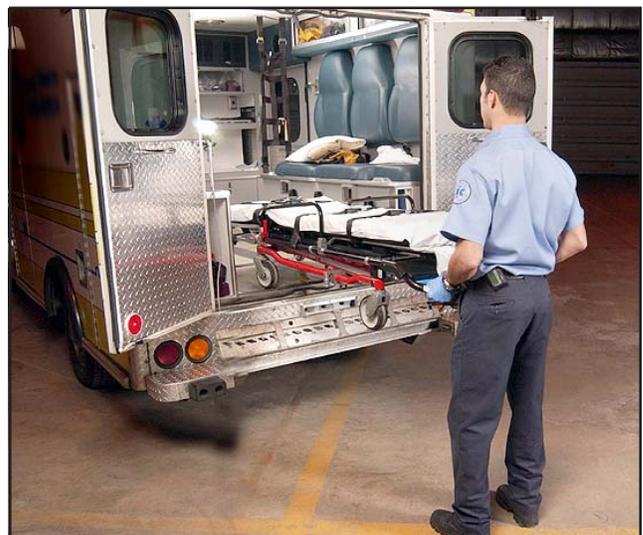


Figure 40 - One Operator With Empty Cot

8.6 Non-Powered Loading and Unloading

To conserve battery power, use the manual mode control handle and manually work the cot.

Follow the instructions for powered loading and unloading with the following changes:

1. **Control Operator (and Helpers):** Lift and hold the cot level.
2. **Assisting Operator:** Squat beside the cot and grasp the lower frame (Figure 41).
3. **Control Operator:** Squeeze and hold the manual mode handle to unlock the undercarriage.
4. **Assisting Operator:** Raise or lower the undercarriage.
5. **Control Operator:** Release the manual mode handle to allow the undercarriage to lock.



Figure 41 - Manual Mode: Non-Powered Loading or Unloading the Cot

9 - MAINTENANCE

9.1 Maintenance Schedule

The cot requires regular maintenance. Set up and follow a maintenance schedule. A sample maintenance record sheet is provided on page 43. The table at right represents minimum intervals for maintenance.

When using maintenance products, follow the manufacturers' directions and read the manufacturers' material safety data sheets. You can purchase a recommended disinfectant from your Ferno distributor or Ferno Customer Relations (page 41).

Minimum Maintenance Intervals	Each Use	As Needed	Each Month
Disinfecting (pages 33-34)	•		
Cleaning (pages 33-34)		•	
Waxing (page 34)		•	
Inspecting (page 34)		•	•
Lubricating (page 35)		•	
Charging Batteries (page 36)		•	

9.2 Disinfecting and Cleaning the Restraints

Remove restraints from the cot. Disinfect and clean only as directed in the restraint users' manuals provided with the restraints. Additional, free manuals can be ordered from Ferno Customer Relations (page 41).

WARNING

Improper maintenance can cause injury. Maintain the cot only as described in this manual.

9.3 Disinfecting and Cleaning the Mattress

1. Remove the mattress from the cot.
2. To disinfect, wipe the mattress with disinfectant, following the manufacturer's instructions.
3. Wash the mattress with warm, soapy water and a soft cloth.
4. Rinse the mattress with clear water.
5. Hang to dry or dry with a towel.

Important

Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Disinfect and clean only with products that do not contain these chemicals.

9.4 Disinfecting the Cot

Wipe all surfaces with disinfectant. Follow the disinfectant manufacturer's directions. Ferno recommends you inspect the cot for damage as you disinfect it.

9.5 Cleaning the Cot

1. Remove the restraints, mattress and any accessories.
2. Clean all surfaces of the cot with warm water and a mild detergent.
3. Use a stiff-bristled brush (but not a metal wire brush) if necessary to remove stains.
4. Rinse with warm water. Dry the cot with a towel or allow it to air dry.

Note: Clean the upper and lower slider tubes (see diagram on page 35) only with soap and water. Rinse well to remove any soap residue.

Important

Using abrasive cleaning compounds or applicators on the cot frame can cause damage. Do not use abrasive materials to clean the cot.

Important

Water under high pressure, or steam, penetrates joints, flushes away lubricant, and causes corrosion. Use caution when cleaning moving parts such as joints and hinges.

9.6 Waxing the Cot

While it is not necessary to wax this cot, waxing the aluminum main frame or the painted legs will not damage them, and will help maintain the cot's appearance.

Disinfect and clean the cot before applying wax. Use an automotive wax as directed by the wax manufacturer.

9.7 Inspecting the Cot

Have your service's equipment maintenance personnel inspect the cot regularly. Follow the checklist at right and operate the cot through all its functions as described in this manual.

If inspection shows damage or excessive wear, remove the cot from service until repair is made.

INSPECTION CHECKLIST

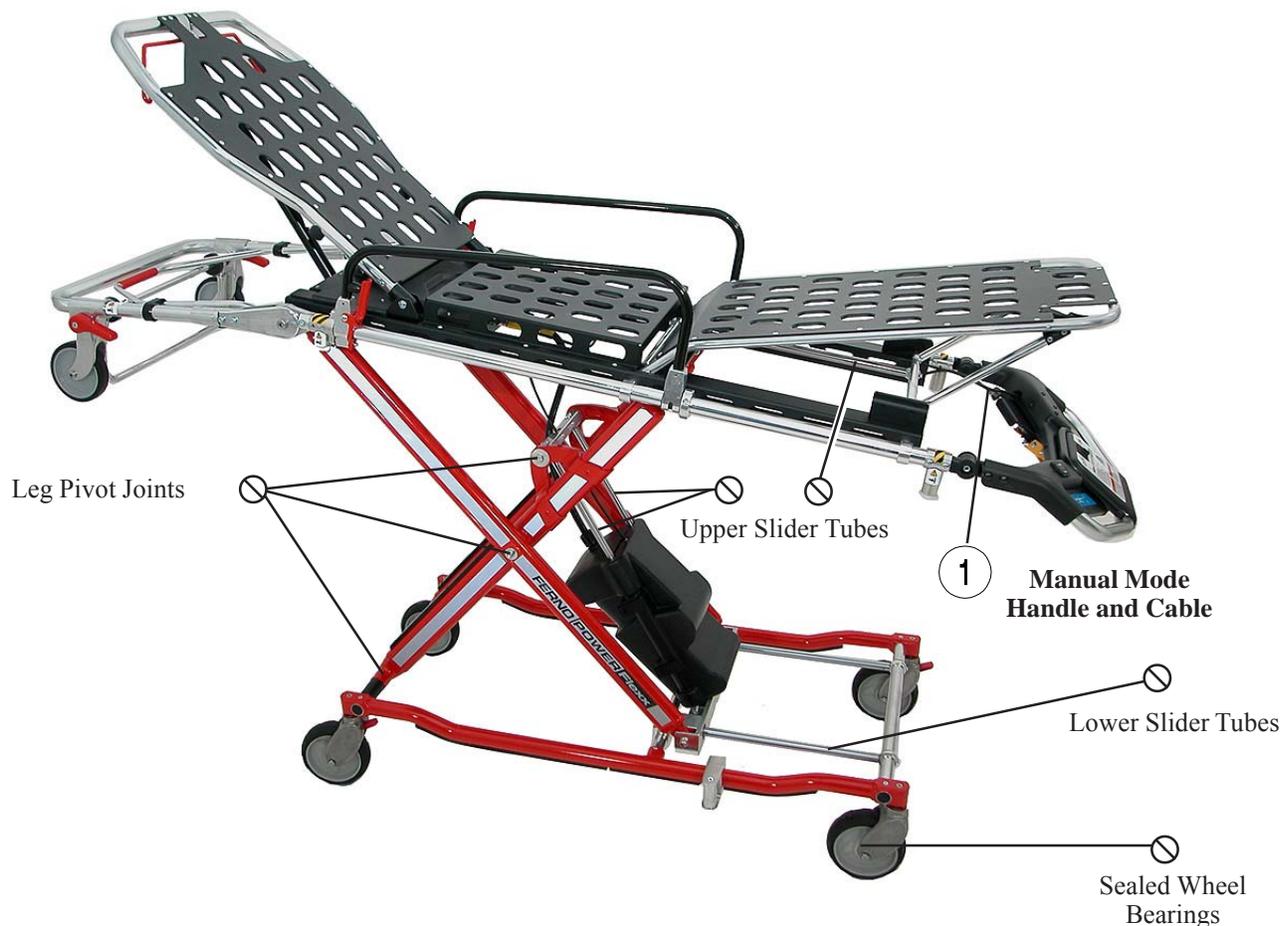
- Are all components present?
- Is the cot free of excessive wear?
- Are all screws, nuts, bolts, rivets, and roll pins securely in place?
- Do all moving parts operate smoothly and properly?
- Do the control switches function properly?
- Does the hydraulic system operate properly through the full range of motion?
- Is there evidence of hydraulic fluid inside the actuator case?
- Are all power cords and connector cables free of excessive wear, cuts, and fraying?
- Does the manual mode handle function properly?
- Is the manual mode handle free of excessive play?
- Do the batteries hold their charge?
- Does the cot load and unload properly?
- Does the safety hook engage the safety bar?
- Does the cot roll smoothly?
- Do the wheels have some tread?
- Are the restraints properly installed?
- Is restraint webbing in good condition with no cuts or frayed edges?
- Are restraint buckles free of visible damage and do they operate properly?
- Is the ambulance properly prepared for the cot (approved fastener installed and safety hook)?
- Do installed accessories operate properly without interfering with cot operation?

9.8 Lubricating the Cot

Disinfect and clean the cot before applying lubricant. Use the lubricants designated below to lubricate the cot. Do not lubricate points marked with the “no lube” symbol.

Important
Lubricating parts that should not be lubricated allows dirt and foreign particles to collect on those parts, resulting in damage. Lubricate **only** the **numbered** reference points shown.

⊘ = Do Not Lubricate



LUBRICATION POINTS

Reference #	Location	# of Points	Lubricate With
①	Manual Mode Handle and Cable*	1	WD-40 or Teflon lubricant
⊘	Upper Slider Tubes**	0	Do not lubricate
⊘	Hydraulic Actuator Rods	0	Do not lubricate
⊘	Lower Slider Tubes**	0	Do not lubricate
⊘	Wheels (sealed bearings)	0	Do not lubricate
⊘	Leg pivot points	0	Do not lubricate

***Note:** The manual mode handle and cable will rarely require lubrication. Inspect every three months and use a very small amount of lubricant if needed.

****Note:** Do not lubricate the upper or lower slider tubes. Clean the tubes with soap and water only. Rinse well to remove any soap residue.

9.9 Charging the Batteries

BATTERY LIFE

The cot can be powered through an average of 50 cycles before the batteries require recharging. Patient weight and extreme temperatures affect the number of cycles.

The rate of speed for raising and lowering the cot is faster when the batteries are fully charged.

The batteries do not have a “memory” and do not need to be discharged before recharging. Recharge the batteries as often as possible. Charge the batteries for 3 hours minimum for a full charge.

If the batteries are providing significantly fewer cycles than normal, replace the batteries or power pack. See *Accessories and Related Products*, page 40.

TO CHARGE THE BATTERIES:

The power pack module may be charged while it is connected to the cot or while separate from the cot (Figure 43 or Figure 44).

1. Connect the battery charger power cord (Figure 42) to a wall outlet. The green indicator on the charger will light.
2. Plug the charging cord into the port marked, “24 VDC Charging Port” on the power pack module.
3. Charge the batteries 3 hours minimum for a full charge.
4. Disconnect the charger from the power pack module before using the cot.

Important

Disconnect the charger before using the cot. Failure to disconnect the charger can damage the charging cord, charger, or power pack.



Figure 42 - Battery Charger

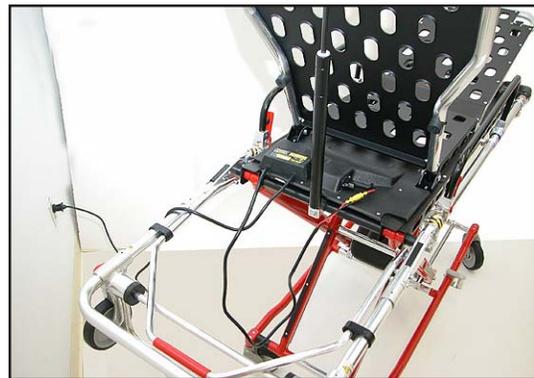


Figure 43 - Charger Connected to Power Pack Module On Cot

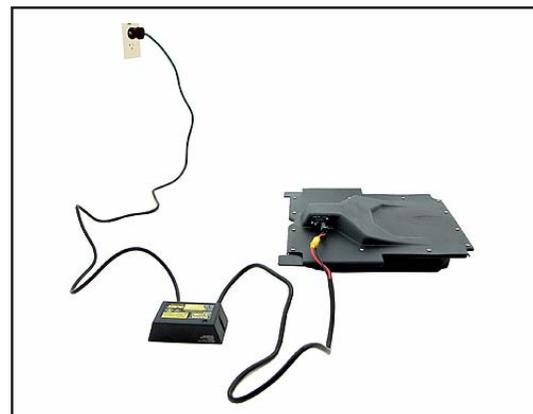


Figure 44 - Charger Connected to Power Pack

9.10 Adjusting the Tension Of the Manual Mode Cable

The manual mode cable may occasionally require adjustment to retain proper function. If the manual mode activates too quickly or too slowly, adjust the tension on the cable.

KNOWING WHEN ADJUSTMENT IS NEEDED

- You **should not** be able to lower the cot without lifting the yellow retaining lever. If you can, the cable is too tight. Decrease tension on the cable. Also, you should be able to pull the red manual mode handle **1 inch** (Figure 45) before the cot begins to descend. If the cot begins to descend earlier, decrease the tension on the cable.
- If the cot does not lower when the manual mode handle is pulled, or lowers too slowly, the cable is too loose. Increase tension on the cable.

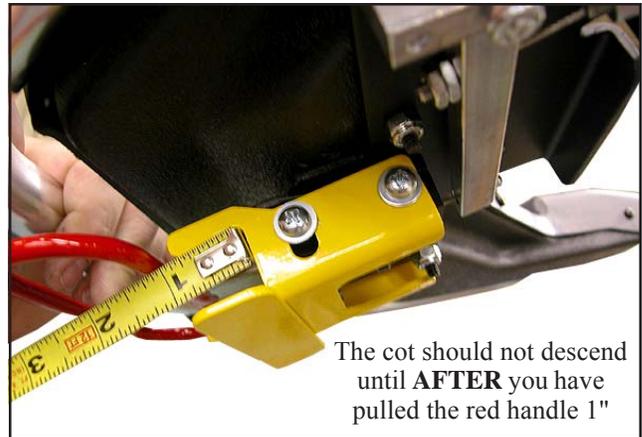
⚠ WARNING

Improper adjustment of the manual mode cable can lead to injury. Adjust the tension of the manual mode cable when needed.

ADJUSTING THE CABLE TENSION

- Place a chock on the lower frame (Figure 46) to keep the cot from folding and reduce your chance of injury while working.
- Locate the two 7/16" adjustment nuts (Figure 47). Use two 7/16" open-end wrenches to adjust the nuts. To adjust the tension on the cable, loosen one nut and then tighten the other nut against it.
 - To increase cable tension:** Loosen the nut nearest the manual mode handle, then tighten the head-end nut against it.
 - To decrease cable tension:** Loosen the nut nearest the head-end of the cot, then tighten the handle-end nut against it.
- Remove the chock. Place weight (such as bags of sand) on the cot and confirm that the manual mode functions properly. Then return the cot to service.

If the cable cannot be adjusted satisfactorily, replace the manual cable (see *Parts and Service*, pages 38-39).



The cot should not descend until **AFTER** you have pulled the red handle 1"

Figure 45 - Proper Handle Function

⚠ WARNING

The cot can rapidly descend and cause injury if manual mode is activated while you are adjusting the manual-mode cable tension. Place a chock on the lower frame and use caution when adjusting cable tension.



Chock example: 4" x 4" block of wood wrapped in carpet

Figure 46 - Place a Chock On the Lower Frame



7/16" Adjustment Nuts

Figure 47 - Manual Mode Adjustment Nuts

10 - PARTS AND SERVICE

10.1 Parts and Service - U.S.A. and Canada

In the United States, to order parts or for professional cot repair, contact EMSAR® - the only agent authorized by Ferno to manage, service, and repair Ferno products. EMSAR factory-trained technicians use Ferno-approved parts and repair procedures. EMSAR has a franchise location serving you. For details, phone, fax, or visit EMSAR's web site.

1.800.73.EMSAR (Phone)
1.937.383.1051 (Fax)
www.EMSAR.com (Internet)



! WARNING

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the cot.

10.2 Parts and Service - Outside North America

To order Ferno parts and for professional cot repair, contact your Ferno distributor. Your distributor is the only agent authorized by Ferno to manage, service, and repair Ferno products.

! WARNING

Modifying the cot can cause injury and damage. Use the cot only as designed by Ferno.

10.3 Parts List

Ref. #	Description	Part #
1	Backrest pivot mount w/screws	190-1466
2	Gas backrest spring assy	190-1486
3	Backrest Rel. Handle	190-1357
4	Backrest panel w/rivets	190-1452
5	Backrest frame with panel	190-1465
6	Seat panel w/rivets	190-1453
7	Shock frame panel w/rivets	190-1454
8	Shock frame tube only w/hardware	190-1455
9	Shock frame support w/levers, hrdwr ...	190-1464
10	Raise/Lower touch pad kit	190-1459
11	ON/OFF switch	190-1460
12	Battery level indicator	190-1461
13	Operator panel assy (complete)	190-1462
14	Lead handle w/hardware	190-1463
15	Manual mode cable only	190-1487
16	Manual mode handle only	190-1488
17	Shock frame support blocks	190-1456
18	Actuator cover latch kit (4 ea)	190-1503

Ref. #	Description	Part #
19	Caster assy. w/brake and hardware	190-1482
20	6" Wheel w/bearings and hardware	190-1144
21	Wheel lock components	190-1145
22	Caster assy. no brake	190-1483
23	Fastener post assy	190-1469
24	Lower frame scuff strip (3 pc. w/rivets) ...	190-1480
25	X-frame axle rod w/cover, hardware	190-1484
26	3/8" Actuator top pivot mount (pair)	190-1481
27	Drop frame hardware (replacement)	090-5794
28	Drop frame clevis pin (pr)	190-1371
29	5" Load wheel w/bushings, hardware ...	190-1243
30	Safety bar torsion springs (r/l)	090-5465
31	Safety bar release handle (pr)	190-1356
32	Battery charger	190-1485
33	Safety hook POWERFlexx	190-1518
34	Label kit	190-1458
35	Battery power pack (complete)	190-1467
36	Battery 12VDC/7AH (1 ea)*	190-1517
37	Actuator assembly (complete)	190-1468

*** Note:** Two batteries are used inside the power pack. Replacement batteries are sold individually.

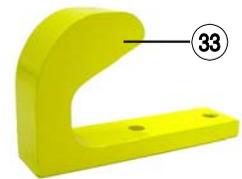
10.4 Parts Diagrams



Lower Frame Painted Parts
(see list this page)

PAINTED PARTS LISTING

Ref. #	Description	Part #
Lower frame side rail (fastener post side)		
	Red	190-1470
	Orange	190-1471
	Green	190-1472
	Blue	190-1473
	Platinum	190-1474
Lower frame side rail (non-fastener post side)		
	Red	190-1475
	Orange	190-1476
	Green	190-1477
	Blue	190-1478
	Platinum	190-1479



Not Shown: 34



11 - ACCESSORIES AND RELATED PRODUCTS

Ferno offers a full line of accessories (fasteners, IV poles, immobilizers, blankets, etc.) approved for use with the cot. Always follow the instructions packed with accessories. Keep the instructions with this manual. Be aware of any special considerations (loading heights, door heights, etc.) when using accessories.

Contact Ferno Customer Relations (page 41) or your Ferno distributor for product information.

⚠ WARNING

Attaching improper items to the cot can cause injury. Use only Ferno-approved items on the cot.

COT-MOUNTED ACCESSORIES

Description	Part #
Large Body Surface (LBS)	081-9991
LBS IV pole	008-7173
LBS mount blocks POWERFlexx (set/6)	082-1994
LBS mount block POWERFlexx (1 ea)	082-1995
274 Pac Rac™ equipment tray	081-9960
513-13 IV pole	008-7172
514 Oxy-Clip	008-5500
Sidearm cover (1 ea)	082-1953
Sof-Net (drop frame storage)	081-9874
Transfer board	010-7981
POWERFlexx locking mattress	031-3997
POWERFlexx power pack module	082-2011
POWERFlexx battery charger	082-2014
POWERFlexx battery (1 ea)	082-2012
POWERFlexx actuator assembly	082-2013

RESTRAINTS

Description	Part #
430 Restraint (2 pc., 7' black)	031-3911
430 Restraint (2 pc., 5' black)	031-3892
417-1 Shoulder harness (black)	031-3915
Guide strap for harness restraint (only)	031-3945

TOUCH-UP PAINT

Description	Part #
Rescue red	081-9972
Day-glo green	081-9973
Safety orange	081-9974
Electric blue	081-9975
Dove gray	081-9976
Black	081-9977

FERNO-RECOMMENDED DISINFECTANT

Description	Part #
SaniZene® Hard Surface Disinfectant 4 ea., 1 gallon	078-9214

12 - LIMITED WARRANTY

Limited Warranty Summary

Ferno products are warranted free from defects in material and workmanship for one year, except:

- External finishes (gelcoat, paint, powdercoat, decals, etc.) are warranted for 90 days.
- Soft goods (webbing, vinyl, fabric, foam, etc.) are warranted for 90 days.
- Ambulance cots and transporters (except external finish and soft goods) are warranted for 2 years.
- Ferno repairs are warranted for 90 days from the date of repair.

This limited warranty applies only when the product is used as described in the instructions provided. The warranty period begins when the product is shipped from Ferno or when you receive it if you have proof of delivery. Shipping charges are not covered by this limited warranty. Ferno is not liable for shipping damages or damages sustained through using the product.

Non-Ferno products sold by Ferno retain the product manufacturer’s original warranties. Ferno offers no warranties of any kind additional to those of the product manufacturer, nor does Ferno assume any liability for products manufactured by others.

Limited Warranty Obligation

If a product is proven defective, Ferno will repair or replace it, or, at our option, refund the item’s purchase price. In no event is Ferno liable for more than the selling price of the product. The purchaser accepts these terms in lieu of all damages.

This is a summary of the limited warranty. The actual terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are available upon request by calling 1.800-733-3766 or 1.937-382-1451.

13 - FERNO CUSTOMER RELATIONS

Customer service and product support are important aspects of each Ferno product. Please have the serial number of your Ferno Breeze available when calling Ferno Customer Relations, and include it in all written communications.

For assistance in the U.S.A., please contact Ferno Customer Relations:

Telephone (Toll-free)..... 1.877.733.0911
 Telephone 1.937.382.1451
 Fax (Toll-free) 1.888.388.1349
 Fax 1.937.382.1191

For assistance worldwide, please contact your Ferno distributor, or Ferno Customer Relations:

Telephone +1.937.382.1451
 Fax +1.937.382.6569
 Internet..... www.ferno.com



Serial Number _____

The serial number is located on the crosstube under the shock frame.

